Study List for Quiz #3:

1. Sine waves – amplitude, frequency, angular frequency, period, and phase.
2. Reactances and impedances of R, L, and C - complex number (j-operator) representation.
3. Using the phasor representation to calculate the magnitudes and phase angles of voltages and currents.

Equation List:

$|X_C| = 1/wC = 1/2pfC$ $\quad Z_C = -j/wC = -j/2pfC \ [1/(\text{Hz}\cdot\text{F}) = 1\Omega]$

$j = \sqrt{-1}$

$|X_L| = wL = 2pfL$ $\quad Z_L = jwL = j2pfL \ [1\text{Hz}\cdot\text{H} = 1\Omega]$

$w = 2pf$

$V = \sqrt{(V_{\text{real}})^2 + (V_{\text{imaginary}})^2}$ $\quad f = \tan^{-1}(V_{\text{imaginary}}/V_{\text{real}})$

$\tilde{V} = V\angle f$

$\tilde{A}\times\tilde{B} = A\times B\angle(f_A + f_B)$ $\quad \tilde{A}/\tilde{B} = A/B\angle(f_A - f_B)$ $\quad \tilde{v} = \tilde{i}\,\tilde{Z}$